

WHAT IS CLAIMED IS:

1. A CMOS active pixel sensor comprising:

light sensing means for generating an output voltage at an output when light is incident thereupon, said light sensing means having an amount of leakage current before said light incidence;

reset means for resetting the output voltage of the light sensing means to an initial reset voltage in response to a reset signal;

a sense transistor having a source, a drain coupled to a power source, and a gate coupled to the output of the light sensing means;

a select transistor having a drain connected to the source of the sense transistor, for providing a voltage at a source of the sense transistor to a bit line, in response to a select signal; and

compensation means for supplying a voltage to the select transistor substantially corresponding to the output voltage of the light sensing means lowered by the leakage current.

2. The CMOS active pixel sensor according to Claim 1, wherein the compensation means comprises:

shielded light sensing means shielded from incident light,

a first transistor for resetting an output voltage of the shielded light sensing means to the initial reset voltage in response to the reset signal; and

a second transistor having a source, a drain coupled to the power source and a gate coupled to the output of the shielded light sensing means, for increasing current flow to the drain of the select transistor in an amount proportional to the leakage current of the shielded light sensing means.

3. The CMOS active pixel sensor according to Claim 2, wherein the first transistor is of the same type as the reset transistor.

4. The CMOS active pixel sensor according to Claim 2, wherein the second transistor is of a complementary type as compared to the sense transistor.

5. A method of increasing voltage readout sensitivity of a CMOS active pixel sensor, said sensor including a first photodiode having leakage current flow, a first reset transistor for resetting photodiode voltage and a first sense transistor connected to said photodiode, the method comprising the steps of:

commonly connecting a second sense transistor at drain and source of said first sense transistor, said second sense transistor is of a type complementary to said first sense transistor;

commonly connecting a second reset transistor to said first reset transistor for activating both first and second reset transistors by a reset signal;

shielding a second photodiode from light incident on said first photodiode and connecting said second photodiode to said second reset transistor and second source transistor; and

reading out voltage upon illumination of incident light on said first photodiode by activating a select transistor connected to said first and second sense transistors.

6. The method according to claim 5, wherein said first sense transistor is a NMOS transistor and said second sense transistor is a PMOS transistor.

7. A circuit for compensating voltage readout loss in a CMOS active pixel sensor, said sensor having a first reset transistor, a first sense transistor, and a first photodiode having characteristic leakage current flow, said circuit comprising:

a second sense transistor commonly connected at drains and sources to the first sense transistor, said second sense transistor is of a type complementary to said first sense transistor;

5 a second reset transistor commonly connected with said first reset transistor at a voltage source and a reset signal line; and

10 a second photodiode having the same characteristic leakage current flow as the first photodiode, said second photodiode being shielded from light incident upon said first photodiode, said second photodiode connected to said second reset transistor and said second sense transistor in the same configuration as the connection of said first photodiode to said first reset and sense transistors.

8. The circuit according to claim 7, wherein said first sense transistor is a NMOS transistor and the second transistor is a PMOS transistor.